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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,331	03/24/2004	Ping Sheng	016660-213	4022
21839	7590	06/08/2006	EXAMINER	
BUCHANAN INGERSOLL PC (INCLUDING BURNS, DOANE, SWECKER & MATHIS) POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			BONCK, RODNEY H	
			ART UNIT	PAPER NUMBER
			3681	

DATE MAILED: 06/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/807,331	<b>Applicant(s)</b> SHENG ET AL.	
	<b>Examiner</b> Rodney H. Bonck	<b>Art Unit</b> 3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8, 15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16 is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☒ Claim(s) 6-8 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

The following action is in response to the amendment received April 19, 2006.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Klass et al.('200). The Klass et al. device is an electrorheological device comprising an electrorheological fluid 60 and an electrode configuration (10, 14, 18, 22 and 12, 16, 20, 24) arranged such that an electric field is generated having a significant component parallel to the direction of an anticipated external stress field. The electrode configuration comprises a plurality of positive and negative electrodes (10, 14, 18, 22 and 12, 16, 20, 24) disposed on an insulating substrate 26. The electrodes are disposed on the substrate so as to provide a series of equidistantly spaced, alternately positive and negative electrodes in the direction of the external stress field.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson('593) in view of Klass et al.('200) . The Carlson device is an electroactive clutch having a cylindrical drive member 14 having electrode strips 38 disposed thereon. The strips in Carlson, however, are not alternating polarity as claimed and thus would not generate a significant component perpendicular to the axis of rotation and parallel to the surface of the members. The Klass et al. device is an electrorheological device comprising an electrorheological fluid 60 and an electrode configuration (10, 14, 18, 22 and 12, 16, 20, 24) arranged such that an electric field is generated having a significant component parallel to the direction of an anticipated external stress field. The electrode configuration comprises a plurality of positive and negative electrodes (10, 14, 18, 22 and 12, 16, 20, 24) disposed on an insulating substrate 26. The electrodes are disposed on the substrate so as to provide a series of equidistantly spaced, alternately positive and negative electrodes in the direction of the external stress field. The Klass et al. device shows a planar electrorheological device for coupling to block 62, but discloses that the device could be cylindrical for coupling to a cylindrical object. It would have been obvious from Klass et al. to modify Carlson to

have alternating positive and negative electrode strips, the motivation being to provide the improved coupling taught by Klass et al.

### ***Allowable Subject Matter***

Claims 6-8 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 16 is allowed.

### ***Response to Amendment***

The amendment to the specification filed April 19, 2006 overcomes the objection to the specification set forth in the previous Office action. Accordingly, the objection is withdrawn.

### ***Response to Arguments***

Applicant's arguments filed April 19, 2006 have been fully considered but they are not persuasive. Applicants argue that Klass is related to a static device in which "there is not any anticipated external stress field". The examiner disagrees. A chuck is similar to a clutch or brake in that it holds two elements against relative motion. If no external stress tending to cause relative motion were anticipated, then there would be no need for a device to prevent relative motion. Claim 1 now requires that the electrodes be in motion relative to the electrorheological fluid. When lateral force is applied in

Klass without applying and electric field or if lateral force exceeding the yield value, there will be relative movement between the fluid and the electrodes.

Regarding the rejection applying the electrorheological fluid coupling to the Carlson device, applicants point out that Carlson uses an electrophoretic fluid. Applicant asserts that the viscosity of electrophoretic fluids decreases as an electric field is applied. Actually, in Carlson, reversing the field causes coupling (see column 2, lines 45-62). More importantly, though, Carlson makes it clear that both electrorheological and electrophoretic clutches are known, and choosing which type would be used would be within the skill of the artisan. Using the alternating electrode arrangement of Klass in a clutch would have been obvious in view of Carlson. Note, too, the Nuber et al.('678) reference cited in the previous Office action. Nuber et al. shows that brakes, clutches, and chucks are recognized as similar in nature.

After reconsideration, it is agreed that further combining the teachings of Kasahara('461) with that of Klass and Carlson would not have been obvious. Thus, the rejection of claims 6 and 8 is withdrawn.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney H. Bonck whose telephone number is (571) 272-7089. The examiner can normally be reached on Monday-Friday 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on (571) 272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3681

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Rodney H. Bonck  
Primary Examiner  
Art Unit 3681

rhb  
June 5, 2006